



# ICAO ENGINE nvPM EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: AS907-2-1S (HTF7700L) BYPASS RATIO (-): 4.2  
 UNIQUE ID NUMBER: 01P18HN013 PRESSURE RATIO  $\pi_{co}$  (-): 23.3  
 COMBUSTOR: SABER-1  
 ENGINE TYPE: MTF RATED OUTPUT  $F_{oo}$  (kN): 34.0

### REGULATORY DATA

CHARACTERISTIC VALUES:	$LTO_{mass}/F_{oo}$ (mg/kN)	$LTO_{num}/F_{oo}$ (particles/kN)	NVPM MASS CONCENTRATION ( $\mu\text{g}/\text{m}^3$ )
LTO/ $F_{oo}$ AND MAX $nvPM_{mass}$	737.0	5.84E+15	1909
AS % OF CAEP/10 LIMIT	-	-	15.1
AS % OF CAEP/11 LIMIT (InP)	18.8	25.5	
AS % OF CAEP/11 LIMIT (NT)	72.6	48.0	

### MEASURED DATA

MODE	POWER SETTING (% $F_{oo}$ )	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES*		NVPM MASS CONCENTRATION PEAK $nvPM_{mass}$ ( $\mu\text{g}/\text{m}^3$ )
				$EI_{mass}$ (mg/kg)	$EI_{num}$ (particles/kg)	
TAKE-OFF	100	0.7	0.386	279.3	1.04E+15	
CLIMB OUT	85	2.2	0.319	299.1	1.84E+15	
APPROACH	30	4.0	0.109	7.7	3.25E+14	
IDLE	7	26.0	0.048	9.8	5.32E+14	
LTO TOTAL (kg, mg, number of particles)			159	18043	1.43E+17	-
NUMBER OF ENGINES				1	1	1
NUMBER OF TESTS				4	4	4
AVERAGE LTO/ $F_{oo}$ VALUES (mg/kN, particles/kN)				530.2	4.20E+15	-
MAX EI VALUES (mg/kg, particles/kg) AND MAX MASS CONC. ( $\mu\text{g}/\text{m}^3$ )				299.6	2.17E+15	1483

\* Emissions Indices are corrected for thermophoretic loss and fuel hydrogen content

### DATA FOR EMISSIONS INVENTORIES (ESTIMATIONS FOR ENGINE EXIT PLANE VALUES)

MODE	POWER SETTING (% $F_{oo}$ )	CORRECTED EMISSIONS INDICES	
		$EI_{mass_{sl}}$ (mg/kg)	$EI_{num_{sl}}$ (particles/kg)
TAKE-OFF	100	329.5	2.90E+15
CLIMB OUT	85	352.9	5.26E+15
APPROACH	30	12.8	2.46E+15
IDLE	7	17.8	4.71E+15

### AMBIENT CONDITIONS

	From	To	FUEL	
BAROMETER (kPa)	96.6	97.5	HEAT OF COMBUSTION (MJ/kg)	43.05
TEMPERATURE (K)	289.0	300.0	HYDROGEN CONTENT (%mass)	13.66
HUMIDITY (kg water/kg dry air)	0.0020	0.0030	AROMATICS CONTENT (%vol)	16.7
			NAPHTHALENE CONTENT (%vol)	1.24
			SULPHUR CONTENT (ppm by mass)	744

MANUFACTURER: Honeywell  
 TEST ORGANIZATION: Honeywell  
 TEST LOCATION: Queen Creek, AZ  
 TEST DATES: 04/12/2015-07/12/2015

### REMARKS

- Reference: Honeywell Report 21-16865 Summary Report: Compliance to International Regulations of Non-Volatile Pa: